

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing Of Claims:

1.-10. (Canceled)

11. (New) A method for monitoring an exhaust gas recirculation of an internal combustion engine by pressure sensing, comprising:

recirculating an exhaust gas from an outlet side of a combustion chamber assemblage via an exhaust gas recirculation conduit to an inlet side of the combustion chamber assemblage;

sensing a pressure curve in at least one combustion chamber;

ascertaining a thermodynamic parameter therefrom as an actual value;

making available a setpoint value of the thermodynamic parameter, the setpoint value taking into account a current operating point of the internal combustion engine; and

determining a deviation between the setpoint value and the actual value is determined;
and

obtaining from the deviation a datum regarding a current exhaust gas recirculation state, as compared with a normal state thereof.

12. (New) The method as recited in Claim 11, wherein:

the thermodynamic parameter is ascertained based on one of a time difference and a crankshaft angle difference between a percentage energy conversion point and one of a reference time and a reference angle known in a control device.

13. (New) The method as recited in Claim 11, wherein:

the pressure curve is sensed by sampling at one of fixed crankshaft angles and time intervals, and

sampled pressure values are stored as a data sequence during at least a portion of one combustion cycle.

14. (New) The method as recited in Claim 11, wherein:
 - the thermodynamic parameter is ascertained during at least a portion of one combustion cycle, on the basis of the pressure curve, from one of:
 - a combustion curve in which a total quantity of heat released is calculated,
 - and
 - a heat curve in which a quantity of heat conveyed to a combustion gas is calculated.
15. (New) The method as recited in Claim 14, further comprising:
 - calculating the heat curve on the basis of the relationship $dQ_h = dU + p \cdot dV$, where dQ_h denotes a quantity of heat conveyed, dU denotes an increase in an internal energy of the combustion gas, and $p \cdot dV$ denotes a mechanical work delivered; and
 - ascertaining an energy conversion percentage from the conveyed quantity of heat dQ_h by integration over the crankshaft angle.
16. (New) The method as recited in Claim 12, further comprising:
 - calculating the percentage energy conversion point according to the formula $Q_i = [n/(n-1)] \cdot p_i \cdot (V_{i+1} - V_{i-1}) \cdot [1/(n-1)] + V_i \cdot (p_{i+1} - p_{i-1})$, where n denotes a polytropic exponent, p denotes a pressure in the combustion chamber, V denotes a cylinder volume, and i denotes a running index of a sampled and stored cylinder pressure from a beginning to an end of a calculation interval;
 - ascertaining an energy conversion percentage by integration of a quantity of heat Q_i over one complete working cycle after determination of a 100% energy conversion; and
 - determining a crankshaft angle corresponding to the energy conversion percentage.
17. (New) The method as recited in Claim 12, wherein a 50% energy conversion point is taken as the basis for the percentage energy conversion point.
18. (New) The method as defined in Claim 12, further comprising:
 - comparing the deviation between the setpoint value and the actual value with a positive limit value and a negative limit value that take into account tolerances of the parameter calculation and of the setpoint value.
19. (New) The method as recited in Claim 11, wherein the pressure curve is determined one of indirectly and directly by way of a sensor arranged in at least one combustion chamber.

20. (New) The method as recited in Claim 11, further comprising:

evaluating the datum in a control device for at least one of a control purpose and a fault diagnosis with at least one of a fault storage and a fault display, corresponding to a readjustment of an exhaust gas recirculation valve.